

SEND OFF TO SPACE DEBRIS USING LASER TECHNIQUES!

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ABSTRACT

This paper is a set of well framed ideas to manage the ever increasing problems of space debris. Firstly the convention flight and rocket techniques are used in combination to put the apparatus to the space station. The experiment is controlled from the space station to clear out space debris. The experiment is developed based on the ablation of ultra-short laser pulses and plasma beam on different metals and other poly-materials while also discussing on the generation of high-density and high-temperature plasmas by focusing high peak power laser radiation onto a solid targets in space. The experiment will be given of the main experimental techniques, namely optical emission and absorption spectroscopy, mass spectrometry, time-of-flight and charge collection measurements, devised to characterize laser-produced plasmas. The fundamental theoretical and numerical approaches developed to analyze laser-target interaction, plasma formation, as well as its expansion will also be reviewed while focusing mainly on metal target ablation and keeping in mind that the continuous qualitative change in the velocity spectrum of expanding ions with increasing laser pulse length, ranging from approximately isothermal behavior from short pulse to ablative behavior from longer pulses.